



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

F. 915 are doubtful. There appear to be two species mixed, and neither of them in any of the copies now accessible to us are *P. igniarius*. In some of the copies certainly this number is *P. rimosus*, Berk., which is yellow and in the young stage of growth has the pileus subtomentose-velutinous, with the hymenium unarmed (as far as we have yet seen) and the spores *ferruginous*.

MUCRONOPORUS NIGRICANS, Fr. Finland specimens from Karsten agree perfectly with specimens collected by Miss Minns on birch trees in New Hampshire. Spines abundant, 12–20 by 5–6 μ .

MUCRONOPORUS SALICINUS, (Pers.). Specimens from Karsten Finland. Spines tolerably abundant, 15–25 by 5–6 μ . Specimens collected by Miss Minns in the Lake Superior region agree perfectly with the Finland specimens. Both this and the preceding (*M. nigricans*) have the pileus smooth, zoned, and black, but *M. salicinus*, according to the description and specimens, is for the most part resupinate with only a narrow reflexed margin, while in the typical *M. nigricans* the pileus is dimidiate without any effused or resupinate part extending down below it, but in this too there are forms either entirely or partly resupinate.

MUCRONOPORUS CONCHATUS, (Pers.). Specimens from Dr. C. B. Plowright, England. Spines few but stout, 15–25 by 6–8 μ . The specimens in N. A. F. 918 have the pores a little smaller, the color inclining more to yellow and the spines rather more abundant. This species has very much the same general appearance as *M. salicinus* but the pileus is *tomentose* and rough.

TRAMETES PROTRACTA, Fr., and *FOMES TENUIS*, Karst. (specimens from Karsten), also have the hymenium thickly studded with long (30–40 μ) spines and will be included in *Mucronoporus*. It may be noted that in all the species enumerated in this and the former paper the color of the hymenium is some shade of rust color or brown. We have not yet noticed any of the light colored species with the hymenium spiny. The same remark will apply to *Hymenochaete*.

NOTES.

By B. T. GALLOWAY.

ASCOSPORES OF THE BLACK-ROT FUNGUS AS AFFECTED BY COVERING WITH EARTH.

As is now well known the ascospores of the fungus causing black-rot of grapes are formed—at least in the majority of cases—during the spring and early summer months in the old berries which were affected the previous season with the disease. On the supposition that burying the old berries in the-spring by turning them under with the plow will destroy the spores, many grape-growers go to considerable trouble and expense every year in order that this work may be done effectually. For the purpose of ascertaining just what effect covering berries, which

were known to contain the fungus of black-rot in various stages of growth, would have on the development of the parasite, but more especially to determine how long the fungus could live under such conditions, the following experiment was made by Col. A. W. Pearson, of Vineland, N. J. Old berries which had lain on the ground under the vines all winter were collected on the 10th of May, 1888, and immediately buried in loose garden soil at a depth of about 3 inches. On the 22d of April, 1889, I visited Colonel Pearson and together we uncovered the grapes, finding a goodly number of them apparently as sound as the day they were buried. With an ordinary magnifying glass the pustules of the *Lasstidia* were easily made out, but of course a higher power was necessary to determine their contents. Accordingly some of the berries were brought to Washington, and on the 29th of April a number of careful examinations were made of them, but in not a single instance was a spore found.

The conceptacles were as numerous as in fresh specimens, but they were entirely empty. In a few cases some rather loose, broken down mycelium was seen passing through the tissues but it did not seem to be in a growing condition. It appears, therefore, that the fungus does not live for more than one year in the old berries providing the latter are buried beneath a few inches of soil and are subjected to ordinary conditions of weather. It is very probable that most of the ascospores escaped from the buried grapes the first summer, germinated as soon as they came in contact with the moist earth and quickly perished. We have undertaken a series of experiments this year for the purpose of determining, if possible, whether burying the old berries and removing the infected ones as fast as they appear has any material effect in diminishing the amount of rot, and if so, whether it will pay to do this work on a large scale.

THE GRAPE-LEAF BLIGHT.

In the eastern part of the United States, especially along the Atlantic coast south of Pennsylvania, the leaves of both cultivated and wild grape-vines are often attacked and frequently considerably injured by a fungus known as *Cladosporium viticolum*. Professor Scribner has described* and figured this parasite in his "Report on the Fungous Diseases of the Grape-Vine" under the name of the "Grape-leaf Blight," and in speaking of the possibility of its being only a stage of some higher form, says:

"What other spore forms there may be, or how the fungus passes the winter, remains to be discovered."

In May, 1888, we found, under a wild vine (*Vitis æstivalis*) near Washington, which was badly affected the previous summer with the *Cladosporium*, a number of leaves still showing the characteristic spots of the disease. Careful examination of these revealed the interesting

* Bulletin No. 2, Bot. Div.

fact that the fungus had survived the winter and was even then giving rise to immense numbers of spores. The latter did not differ from those formed throughout the summer, excepting that they were somewhat darker. The spores were sown in water and many of them germinated at the expiration of four hours, thus proving their vitality beyond question. Sections of diseased parts revealed the presence of a mycelium not differing to any great extent from that usually seen in growing leaves, excepting that here and there it was knotted together, forming somewhat globular, dark-colored masses, upon which the spores, together with their supporting stalks, were borne. The latter occur in compact bundles, and in our experiments it was shown that it is not uncommon for them to give rise to three or four successive crops of spores. It is very probable that the life of the fungus is in most cases preserved during winter by these bodies, and that the first warm days of spring are sufficient to start them into renewed growth and the consequent formation of spores.

A knowledge of the foregoing facts shows the importance of destroying the old leaves in the fall.

KANSAS FUNGI.

Profs. W. A. Kellerman and W. T. Swingle have just issued their first fascicle of Kansas Fungi, embodying twenty-five species neatly folded in papers, each accompanied by a printed label. The authors propose to issue a fascicle every two or three months, each of which will include about twenty-five specimens, made up of new species or those hitherto undistributed; also species occurring on new host plants. Only a limited number of copies will be issued, and if there are any left after their friends have been provided for they will be sold for \$1.25 per fascicle. The following is a list of the species and hosts of Fascicle I:

1. *ÆCIDIUM ÆSCULI*, E. & K. On *Æsculus arguta*.
2. *ÆCIDIUM DICENTRÆ*, Trelease. *Dicentra Cucullaria*.
3. *CERATOPHORUM UNCINATUM*, (Clinton) Sacc. *Carya amara*.
4. *CERCOSPORA CUCURBITÆ*, E. & E. *Cucurbita perennis*.
5. *CERCOSPORA DESMANTHI*, E. & K. *Desmanthus brachylobus*.
6. *CERCOSPORA LATERITIA*, Ell. & Halsted. *Sambucus Canadensis*.
7. *CERCOSPORA SEMINALIS*, E. & E. *Buchloe dactyloides*.
8. *GLEOSPORIUM APOCRYPTUM*, E. & E. *Negundo aceroides*.
9. *GLEOSPORIUM DECIPIENS*, E. & E. *Fraxinus viridis*.
10. *MELASMA GLEDITSCHÆ*, E. & E. *Gleditschia triacanthos*.
11. *MICROSPHLERA QUERCINA*, (Schw.) Burrill. *Quercus tinctoria*.
12. *PERONOSPORA ARTHURI*, Farlow. *Oenothera sinuata*.
13. *PERONOSPORA CORYDALIS*, De Bary. *Corydalis aurea*, var. *occidentalis*.
14. *PHRAGMIDIUM SPECIOSUM*, Fr. *Rosa Arkansana*.
15. *PUCCINIA EMACULATA*, Schw. *Panicum capillare*.
16. *PUCCINIA SCHEDONNARDI*, Kell. & Sw. *Schedonnardus Texanus*.
17. *PUCCINIA (LEPTOPUCCINIA) XANTHII*, Schw. (a) *Ambrosia artemisiæ-folia*, (b) *Ambrosia psilostachya*.
18. *RAMULARIA VIRGAURÆÆ*, Thuem. *Solidago Canadensis*.
19. *ROESTELIA PIRATA*, (Schw.) Thaxter. *Pirus coronaria*.

20. *SCOLECOTRICHUM MACULICOLA*, E. & K. *Phragmites communis*.
21. *SEPTORIA ARGOPHYLLA*, E. & K. *Psoralea argophylla*.
22. *SEPTORIA SPECULARIÆ*, B. & C. (a) *Specularia perfoliata* (b) *Specularia leptocarpa*.
23. *SPHÆROTHECA PHYTOPTOPHILA*, Kell. & Sw. *Celtis occidentalis*.
24. *UREDIO QUERCUS*, Bordeaux. *Quercus macrocarpa*.
25. *USTILAGO ZEÆ MAYS*, (DC.) Winter. (*Euchlœna luxurians*.)

THE ASH-LEAF RUST (*ÆCIDIUM FRAXINI*).

This fungus was very abundant in the vicinity of Washington during the summer of 1887, occurring on large and small trees both in and out of the city. Last year (1888) it was comparatively rare, occurring only on small trees in the country, especially those growing along streams or in shady woods. At this time an attempt was made to germinate the spores. They were sown in water, moist air, and several culture fluids, but only in a few cases did they develop germ tubes. As a rule æcidiospores germinate readily when fresh, so that it is difficult to account for the non-success attending our trials. It would be interesting to know whether the spores of this fungus will germinate more readily in seasons when it is abundant.

TREATMENT OF GRAPE MILDEW MADE OBLIGATORY.

According to *Chronique Agricole et Viticole*, published at Lausanne, Switzerland, a decree was issued on May 4, 1889, making the treatment of vines for mildew obligatory. The decree provides that the Department of Agriculture shall give the necessary instructions, and unless these are complied with within the prescribed time the vines will be taken in hand by the authorities and treated at the expense of the owners. The owner for each offense will also be subject to a fine of not less than 10 nor more than 90 francs, this being equivalent to about \$2 and \$18, respectively.

DIORCHIDIUM TRACYI, DE TONI (*PUCCINIA VERTI-SEPTA*, TRACY & GALLOWAY).

This interesting fungus was discovered on a specimen of *Salvia ballataeflora* from New Mexico in the herbarium of the Department of Agriculture at Washington, and was described in the *Journal of Mycology*, Vol. IV, p. 21. As there are, so far as we know, only two meager specimens of this species in existence, we have thought best to illustrate it (Plate X, Figs. 3 and 4), so as to preserve its identity in case anything should happen to the specimens. The genus was established by Kalchbrenner in 1883,* and as it now stands contains five species as follows:

- DIORCHIDIUM WOODII*, K. & C., on *Melletia caffra* from South Africa.
- D. BINNATUM*, (B. & C.) De Toni, on unknown host from Nicaragua.
- D. TRACYI*, (T. & G.) De Toni, on *Salvia ballataeflora* from New Mexico.
- D. PALLIDEUM*, Winter, on unknown host from Brazil.
- D. LEVE*, Sacc. & Bizz., on *Manisurus granularis* from Brazil.

*(Grev., XI., p. 26.)

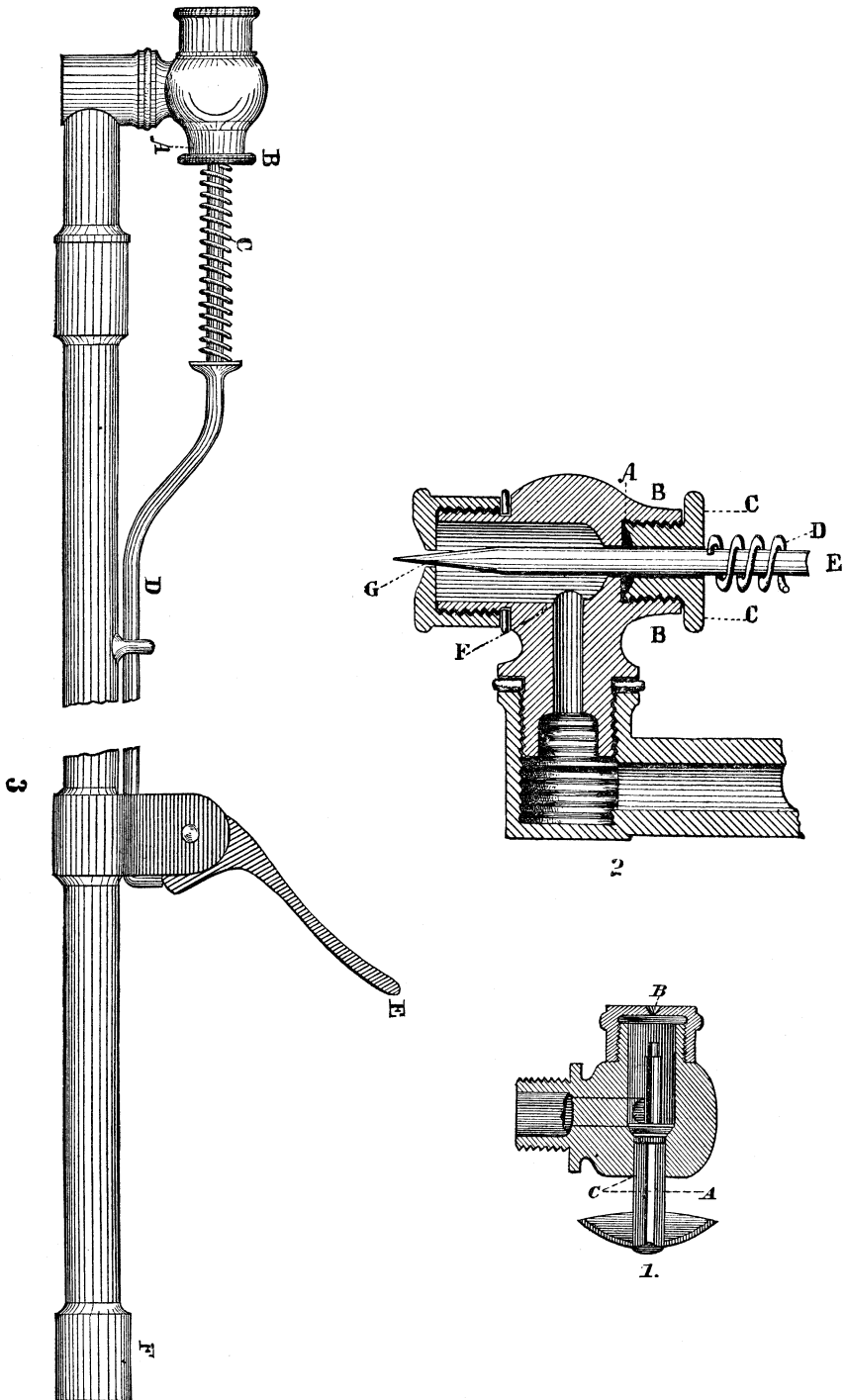
A NEW MODIFICATION OF THE VERMOREL NOZZLE.

In applying the Bordeaux mixture and other copper preparations with the Vermorel nozzle (Fig. 1) it often happens, especially after the pump has been used for some time, that the degorger A when pressed forward for the purpose of clearing an obstruction in the orifice B does not slip back of its own accord, and in consequence the liquid rushes out at C until it is checked by the operator reaching forward and pulling the rod down with his hand. To remedy this difficulty as well as to be able to suddenly stop and start the flow of liquid, which in certain kinds of work is often desirable, we have had constructed the nozzle and lance figured at 2 and 3. It will be seen that the spring C (Fig. 3) and the rod D are practically the same as those in use on the Raveneau nozzle figured and described in Bulletin No. 5 of the Section of Vegetable Pathology* Fig. 2 shows the modified nozzle natural size in section with the orifice G closed by the degorger E. The liquid entering the chamber at F is prevented from escaping at the back of the nozzle by the packing A, through which the degorger E works, and which is tightened by turning the screw of the stuffing box C. The brass spring D should not be fastened to the degorger E for the reason that it is often necessary to remove it so that the degorger may be cleaned and oiled.

Mr. A. L. Holladay, our agent located at Charlottesville, Va., has used the nozzle and lance for some time, and in answer to our inquiries as regards its work, says:

I like the apparatus better than any I have ever used. The spray being readily and quickly cut off, without putting the other hand to the lance, renders it convenient in passing from one row to another, or in passing around the end of a row. Then there is no danger of losing the cup at the end of the degorger and having the liquid squirted back in your face or upon your clothes. Best of all, however, I like the way the degorger springs back of its own accord. With the old nozzle, when the lance is pointed downwards, the degorger often slips forward and then instead of spraying in front the liquid shoots out behind, which is very annoying.

* P. 104.



A NEW MODIFICATION OF THE VERMOREL NOZZLE.